

ABSTRACT OF THE DISCLOSURE

Microprocessor that includes a mechanism for detecting soft errors. The processor includes an instruction fetch unit for fetching an instruction and an instruction decoder for decoding the instruction. The mechanism for detecting soft errors includes duplication hardware for duplicating the instruction and comparison hardware. The processor further includes a first execution unit for executing the instruction in a first execution cycle and the duplicated instruction in a second execution cycle. The comparison hardware compares the results of the first execution cycle and the results of the second execution cycle. The comparison hardware can include an exception unit for generating an exception (e.g., raising a fault) when the results are not the same. The processor also includes a commit unit for committing one of the results when the results are the same.